

# PATENT ABSTRACTS OF JAPAN

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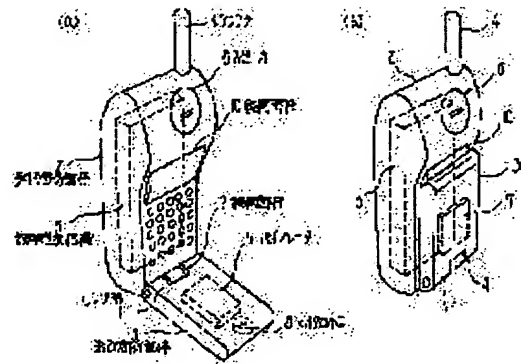
(72)Inventor : TAMURA YOSHIHARU

## (54) PORTABLE TELEPHONE

### (57)Abstract:

PURPOSE: To miniaturize a foldable casing and also to minimize the vibrations of a vibrator which are transmitted to a radio transceiver.

CONSTITUTION: A portable telephone consists of the 1st and 2nd partial casings 2 and 3 which is foldably connected together by a hinge part 1. The casing 2 stores an antenna 4, a radio transceiver 5 and a speaker 6, and the casing 3 stores a vibrator 7 and a microphone 8 respectively. That is, the comparatively compact and light-weight microphone 8 is stored in the casing 3 separately from the casing 2 which stores the transceiver 5 and the speaker 6 which have the large volume and weight. In a speech mode, the telephone is unfolded as shown in (a) so that the speaker 6 and the microphone 8 are set close to the ear and the mouth of a user respectively. Then the casing 3 touches the casing 2 via a buffer member 9 of the part 1 and then via a buffer member 10 when the telephone is folded as shown in (b).



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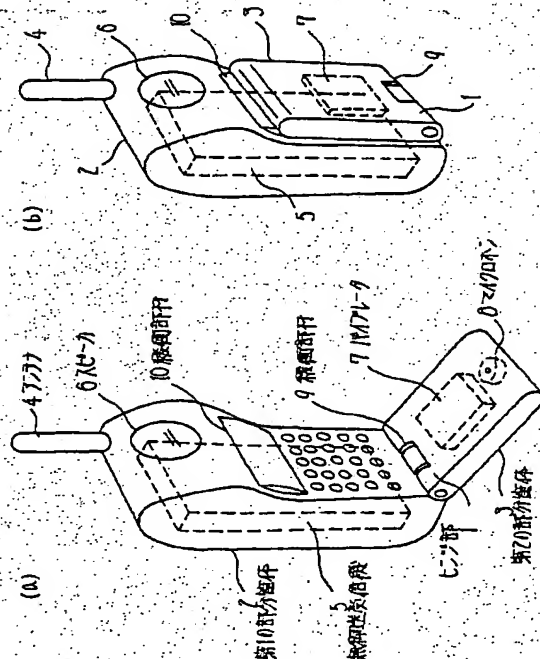
(74)代理人 弁理士 京本 直樹 (外2名)

(54)【発明の名称】 携帯電話

(57)【要約】

【目的】折り畳み式の筐体を用いて小型化するとともに、バイブレータの振動の無線送受信機への伝播を極力少なくする。

【構成】ヒンジ部1により折り畳み可能に結合された第1の部分筐体2と第2の部分筐体3とから構成され、第1の部分筐体2にはアンテナ4と無線送受信機5とスピーカ6とを收容し、第2の部分筐体3にはバイブレータ7とマイクロホン8とを收容している。つまり、体積、重量とも一番大きい無線送受信機5、スピーカ6を收容した第1の部分筐体2とは別の第2の筐体に、比較的小型、軽量のマイクロホン8を收容し、通話するときは図1(a)に示す状態に開いてスピーカ6、マイクロホン8がそれぞれ使用者の耳、口の近辺にくるようにする。第2の部分筐体3は、ヒンジ部1の緩衝部材9を介して、また、図1(b)に示すように折り畳んだときには緩衝部材10を介して第1の部分筐体2と接触する。



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## 【特許請求の範囲】

【請求項1】 ヒンジ部によって折り畳み可能に結合された第1および第2の部分筐体から構成された携帯電話において、前記第1の部分筐体は少なくとも無線送受信機を収容し、前記第2の部分筐体は少なくとも着信信号により起動されて前記第2の部分筐体の壁面を振動させるバイブレータを収容したことを特徴とする携帯電話。

【請求項2】 前記ヒンジ部に前記第2の部分筐体の壁面の振動の前記第1の部分筐体への伝播を弱めるための緩衝部材を付加したことを特徴とする請求項1記載の携帯電話。

## 【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は携帯電話に関し、特に振動によって使用者に着信を知らせる機能を有する携帯電話に関する。

【0002】

【従来の技術】従来、無線呼出し装置では、バイブレータを内蔵してその振動を筐体に伝播して電話機への着信を使用者に知らせる手法はよく知られている。これは、会議中や満員電車の車内等の環境下で、周囲に迷惑をかけないように本人にだけ着信を知らせるためである。

【0003】しかし、携帯電話にはバイブレータにより着信を知らせるものはまだ開発されていない。

【0004】

【発明が解決しようとする課題】近年、携帯電話の小型化、軽量化が進められているが、未だに無線呼出し装置と比較すると、体積、重量ともかなり大きいのが現実である。

【0005】この十分に小型化ができない携帯電話の筐体を振動させて、使用者に着信を認知させるためには、かなり大型のバイブレータが必要となり、その駆動電力も大きくなる。

【0006】また、携帯電話は無線呼出し装置とは異なり、受信のみではなく送信を行う必要があり、呼出し信号受信時、即ちバイブレータの駆動中にも、制御データや回線接続確認用データを送出する無線送受信機を設けている。この無線送受信機で扱うデータは一般に周波数偏移が小さく、振動の影響を受け易い。

【0007】このように、従来の携帯電話は、大型のバイブレータを必要とし、またこれを駆動する電源、例えば電池の容量も大きいものが必要であり、さらに無線送受信機の性能に筐体の振動が悪影響を及ぼすので、携帯電話へのバイブレータの採用は困難であるという問題点があった。

【0008】本発明の目的は、折り畳み式の筐体を用いて小型化するとともに、バイブレータの振動の無線送受信機への伝播を極力少なくした携帯電話を提供することにある。

【0009】

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【課題を解決するための手段】本発明の携帯電話は、ヒンジ部によって折り畳み可能に結合された第1および第2の部分筐体から構成された携帯電話において、前記第1の部分筐体は少なくとも無線送受信機を収容し、前記第2の部分筐体は少なくとも着信信号により起動されて前記第2の部分筐体の壁面を振動させるバイブレータを収容したことを特徴とする。

【0010】また、前記ヒンジ部に前記第2の部分筐体の壁面の振動の前記第1の部分筐体への伝播を弱めるための緩衝部材を付加したことを特徴とする。

【0011】

【実施例】次に、本発明について図面を参照して説明する。

【0012】図1は本発明の携帯電話の一実施例を示す斜視図で、(a)は通話中の状態を示し、(b)は着信待ちの状態を示している。

【0013】本実施例の携帯電話は、図1に示すようにヒンジ部1により折り畳み可能に結合された第1の部分筐体2と第2の部分筐体3とから構成されている。

【0014】そして、第1の部分筐体2にはアンテナ4と無線送受信機5とスピーカ6とを収容し、第2の部分筐体3にはバイブレータ7とマイクロホン8とを収容している。

【0015】つまり、体積、重量とも一番大きい無線送受信機5、スピーカ6を収容した第1の部分筐体2とは別の第2の筐体に、比較的小型、軽量のマイクロホン8を収容し、通話するときは図1(a)に示す状態に開いてスピーカ6、マイクロホン8がそれぞれ使用者の耳、口の近辺にくるようにする。

【0016】このように構成した本実施例では、第2の部分筐体3は第1の部分筐体2より小型となり、内蔵するバイブレータ7も小さいもので良くなり、その駆動電源(電池)の容量も小さいもので良い。

【0017】また、ヒンジ部1は本質的に可動部であり、バイブレータ7は駆動されたとき(着信のとき)にその振動が第2の部分筐体3の壁面に伝播されるように取り付けられている。

【0018】そして、第2の部分筐体3は、ヒンジ部1の緩衝部材9を介して、また、図1(b)に示すように折り畳んだときには緩衝部材10を介して第1の部分筐体2と接触するので、着信時に第1の部分筐体2に伝播されるバイブレータ7の振動は大幅に減衰され、無線送受信機5の特性に悪影響を及ぼすことがほとんどなくなる。

【0019】

【発明の効果】以上説明したように本発明の携帯電話は、折り畳み可能な構造を有し、かつバイブレータを2つの部分筐体のうち体積、質量とも小さくできる方の部分筐体に収容したので、小型のバイブレータで使用者に着信を認知させることができる。

【0020】従って、バイブレータ駆動用の電源の容量を小さくでき、総合的に携帯電話を小形に保ったまま、バイブレータにより着信を使用者に知らせることができるという効果を有する。

【0021】また、バイブレータが無線送受信機とは別の部分筐体に収容されているので、その振動による無線送受信機の特性に与える影響も極めて少ないという効果を有する。

【図面の簡単な説明】

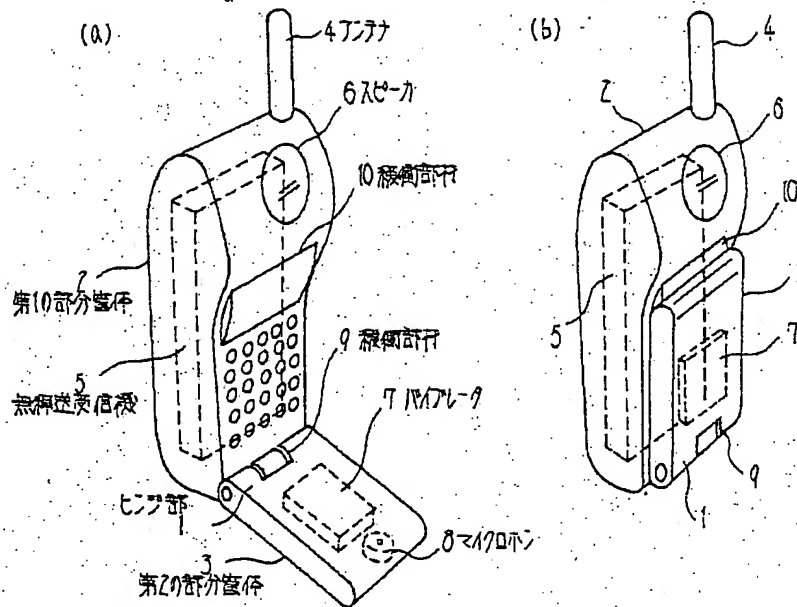
【図1】本発明の携帯電話の一実施例を示す斜視図で、(a)は通話中の状態を示し、(b)は着信待ちの状態

を示している。

【符号の説明】

- 1 ヒンジ部
- 2 第1の部分筐体
- 3 第2の部分筐体
- 4 アンテナ
- 5 無線送受信機
- 6 スピーカ
- 7 バイブレータ
- 8 マイクロホン
- 9 10 緩衝部材

【図1】



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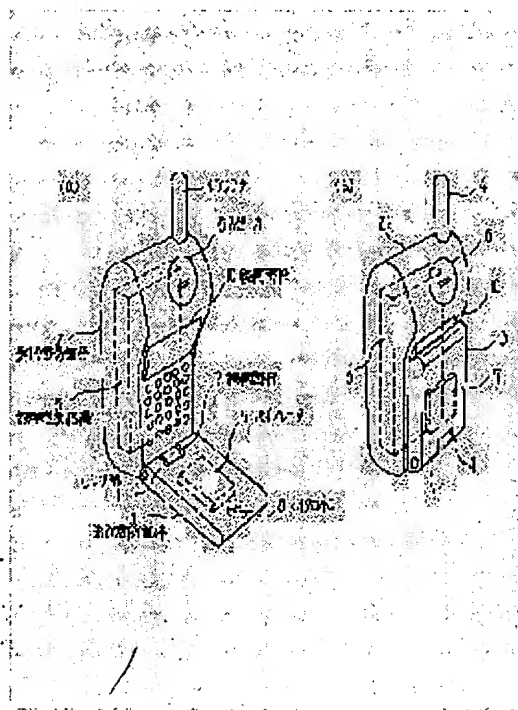
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CONSTITUTION: A portable telephone consists of the 1st and 2nd partial casings 2 and 3 which is foldably connected together by a hinge part 1. The casing 2 stores an antenna 4, a radio transceiver 5 and a speaker 6, and the casing 3 stores a vibrator 7 and a microphone 8 respectively. That is, the comparatively compact and light-weight microphone 8 is stored in the casing 3 separately from the casing 2 which stores the transceiver 5 and the speaker 6 which have the large volume and weight. In a speech mode, the telephone is unfolded as shown in (a) so that the speaker 6 and the microphone 8 are set close to the ear and the mouth of a user respectively. Then the casing 3 touches the casing 2 via a buffer member 9 of the part 1 and then via a buffer member 10 when the telephone is folded as shown in (b).



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CLAIMS

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[Claim(s)]

[Claim 1] It is the cellular phone characterized by holding the vibrator which said 1st partial housing holds [ vibrator ] a radio receiver-transmitter at least, and said 2nd partial housing is started [ vibrator ] by the terminating signal at least, and vibrates the wall surface of said 2nd partial housing in the cellular phone which consisted of the 1st and 2nd partial housings combined by the hinge region possible [ folding ].

[Claim 2] The cellular phone according to claim 1 characterized by adding the buffer member for weakening the propagation to said 1st partial housing of vibration of the wall surface of said 2nd partial housing to said hinge region.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] Especially this invention relates to the cellular phone which has the function to tell a user about arrival of the mail by vibration about a cellular phone.

[0002]

[Description of the Prior Art] Conventionally, the technique of building in vibrator, spreading the vibration to a housing, and telling a user about the arrival to telephone is well known for the wireless calling device. This is for telling only him about arrival of the mail that trouble is not made to a perimeter under environments, such as under a meeting and in the car [ of a crowded electric car ].

[0003] However, what tells arrival of the mail by vibrator is not developed yet by the cellular phone.

[0004]

[Problem(s) to be Solved by the Invention] Although miniaturization of a cellular phone and lightweight-ization are advanced in recent years, as compared with a wireless calling device, a thing with quite large volume and weight is still actual.

[0005] In order to vibrate the housing of this cellular phone whose miniaturization is fully impossible and to make a user recognize arrival of the mail, quite large-sized vibrator is needed and that drive power also becomes large.

[0006] Moreover, unlike the wireless calling device, the cellular phone needed to perform not only reception but transmission, and has prepared the radio receiver-transmitter which sends out control data and the data for a line connection check also during alerting signal reception, i.e., the drive of vibrator. Generally the data treated with this radio receiver-transmitter have small frequency deviation, and tend to be influenced of vibration.

[0007] Thus, the power source also has a large capacity of a cell and which the conventional cellular phone needs large-sized vibrator, and drives this, for example, what, was required, and since vibration of a housing had the bad influence on the engine performance of a radio receiver-transmitter further, adoption of the vibrator to a cellular phone had a trouble of it being said that it is difficult.

[0008] The purpose of this invention is to offer the cellular phone which lessened the propagation to the radio receiver-transmitter of vibration of vibrator as much as possible while miniaturizing using the housing of a fold-up formula.

[0009]

[Means for Solving the Problem] In the cellular phone with which the cellular phone of this invention consisted of the 1st and 2nd partial housings combined by the hinge region possible [ folding ], it is characterized by for said 1st partial housing having held the radio receiver-transmitter at least, and holding the vibrator which said 2nd partial housing is started [ vibrator ] by the terminating signal at least, and vibrates the wall surface of said 2nd partial housing.

[0010] Moreover, it is characterized by adding the buffer member for weakening the propagation to said 1st partial housing of vibration of the wall surface of said 2nd partial housing to said hinge region.

[0011]

[Example] Next, this invention is explained with reference to a drawing.

[0012] Drawing 1 is the perspective view showing one example of the cellular phone of this invention, (a) shows the condition under message and (b) shows the condition of the waiting for arrival of the mail.

[0013] The cellular phone of this example consists of the 1st partial housing 2 and the 2nd partial housing 3 which were combined by the hinge region 1 possible [ folding ] as shown in drawing 1 .

[0014] And the antenna 4, the radio receiver-transmitter 5, and the loudspeaker 6 were held in the 1st partial housing 2, and vibrator 7 and a microphone 8 are held in the 2nd partial housing 3.

[0015] That is, the volume and weight hold the comparatively small and lightweight microphone 8 in 2nd housing with another largest radio receiver-transmitter 5 and 1st partial housing 2 with which the loudspeaker 6 was held, and when talking over the telephone, it opens to the condition which shows in drawing 1 (a), and is made for a loudspeaker 6 and a microphone 8 to come to the neighborhood of a user's lug and opening, respectively.

[0016] Thus, it becomes small, and the vibrator 7 to build in is also small and it is [ the 2nd partial housing 3 becomes good and ] easy to be smaller [ the housing / the capacity of the drive power source (cell) ] in constituted this example than the 1st partial housing 2.

[0017] Moreover, a hinge region 1 is essentially moving part, and when it drives (at the time of arrival of the mail), vibrator 7 is attached so that the vibration may spread on the wall surface of the 2nd partial housing 3.

[0018] And since the 2nd partial housing 3 contacts the 1st partial housing 2 through the buffer member 10 when it folds up through the buffer member 9 of a hinge region 1, as shown in drawing 1 (b), it decreases sharply vibration of the vibrator 7 spread to the 1st partial housing 2 at the time of arrival of the mail, and having a bad influence of it on the property of a radio receiver-transmitter 5 is almost lost.

[0019]

[Effect of the Invention] As explained above, the cellular phone of this invention has foldable structure, and since vibrator was held in the partial housing of the direction which can do the volume and mass small between two partial housings, a user can be made to recognize arrival of the mail by small vibrator.

[0020] Therefore, it has the effectiveness that a user can be told about arrival of the mail by vibrator, being able to make small capacity of the power source for a vibrator drive, and keeping a cellular phone small synthetically.

[0021] Moreover, since vibrator is held in the partial housing different from a radio receiver-transmitter, it has the effectiveness that there is also very little effect which it has on the property of the radio receiver-transmitter by the vibration.

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EFFECT OF THE INVENTION

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TECHNICAL PROBLEM

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MEANS

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EXAMPLE

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] With the perspective view showing one example of the cellular phone of this invention, (a) shows the condition under message, and (b) shows the condition of the waiting for arrival of the mail with it.

[Description of Notations]

- 1 Hinge Region
- 2 1st Partial Housing
- 3 2nd Partial Housing
- 4 Antenna
- 5 Radio Receiver-transmitter
- 6 Loudspeaker
- 7 Vibrator
- 8 Microphone
- 9 Ten Buffer member

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[Translation done.]

